# Dr. Sourav Tarafder

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Personal Homepage





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### Education

Doctor of Philosophy in Pure Mathematics, University of Calcutta. Title: Non-Classical Set Theories and Logics Associated with them.

2008 Master of Science, Department of Pure Mathematics, University of Calcutta.

2006 Bachelor of Science in Mathematics Honours, Asutosh College, University of Calcutta.

### **Publications**

### Refereed Papers

• Benedikt Löwe, Robert Paßmann, & Sourav Tarafder, Constructing illoyal algebra-valued models of set theory. Algebra Universalis, 82, 46. DOI: https://doi.org/10.1007/s00012-021-00735-4.

• Sourav Tarafder & Giorgio Venturi, Independence proofs in non-classical set theories. The Review of Symbolic Logic, First View, pp. 1 – 32. DOI: https://doi.org/10.1017/S1755020321000095.

- Sourav Tarafder & Mihir Kr. Chakraborty, A Paraconsistent Logic Obtained from an Algebra-Valued Model of Set Theory. Beziau, J. Y., Chakraborty, M. K. and Dutta, S., editors, New Directions in Paraconsistent Logic, 5th WCP, Kolkata, India, February 2014, Springer Proceedings in Mathematics & Statistics, Vol. 152. New Delhi: Springer, pp. 165 183.
- Benedikt Löwe & Sourav Tarafder, Generalized Algebra-Valued Models of Set Theory. The Review of Symbolic Logic, 8(1), pp. 192 205.
  - Sourav Tarafder, Ordinals in an Algebra-Valued Model of a Paraconsistent Set Theory. In Banerjee, M. and Krishna, S., editors. Logic and Its Applications, 6th International Conference, ICLA 2015, Mumbai, India, January 8 10, 2015, Lecture Notes in Computer Science, Vol. 8923. Berlin: Springer-Verlag, pp. 195 206.

### Accepted for Publication

2021 Sourav **Tarafder** & Giorgio **Venturi**, ZF between classicality and non-classicality. **Studia Logica**.

#### Submitted for Publication

- Santiago Jockwich Martinez, Sourav Tarafder, & Giorgio Venturi, Quotient models for a class of non-classical set theories.
- Sourav Tarafder, Foundation of Mathematics in a Class of Non-Classical Set Theories.
- Santiago **Jockwich Martinez**, Sourav **Tarafder**, & Giorgio **Venturi**, **ZF** and its interpretations.
- Santiago Jockwich Martinez, Sourav Tarafder, & Giorgio Venturi, *Ideal objects for set theory*.
- Sourav **Tarafder** & Giorgio **Venturi**, *Independence proofs in non-classical set theories*.

#### **Book Chapter**

2020 Soma **Dutta** & Sourav **Tarafder**, Consequence-inconsistency interderivability in paraconsistent logics and paraconsistent set theory, to appear in the Handbook of Logical Thought in India, Springer Nature, New Delhi.

#### Others

2019

• Sourav Tarafder. Abstract of the PhD thesis: Non-Classical Set Theories and Logics Associated with them. The Bulletin of Symbolic Logic, 25(4), p. 451.

• Sourav Tarafder. Abstract of the contributed talk: Foundation of Mathematics in a Class of Paraconsistent Set Theories (presented in the 2019 European Summer Meeting of the Association for Symbolic Logic: Logic Colloquium 2019, Prague, Czech Republic), The Bulletin of Symbolic Logic, 25(4), p. 526.

### Research Visists

2020 - 2019Institute of Philosophy and Human Sciences, University of Campinas, Brazil, 16 October, 2019 – 15 October, 2020. 2018 The Institute of Mathematical Sciences, Chennai, India, 2 June – 16 June, 2018. 2017 The Institute of Mathematical Sciences, Chennai, India, 19 June – 31 June, 2017. 2016 The Institute of Mathematical Sciences, Chennai, India, 23 October – 1 November, 2015 The Institute of Mathematical Sciences, Chennai, India, 10 June – 23 June, 2015. 2014 Short term research visit to the *University of Amsterdam*, Amsterdam, The Netherlands, 1 June – 10 June, 2014. 2013 Short term research visit to the *University of Hamburg*, Hamburg, Germany, 1 June – 30 June, 2013. 2012 Short term research visit to the Isaac Newton Institute for Mathematical Sciences, Cambridge University, Cambridge, England, 21 April – 27 May, 2012. 2010 - 2011Institute for Logic, Language and Computation, University of Amsterdam, Amsterdam, The Netherlands, 1 September, 2010 – 31 August, 2011.

# Fellowships and Grants Awarded

#### Research Grants

- 2019 Pesquisador visitante grant, FAPESP, Brazil; visiting researcher at the Institute of Philosophy and Human Sciences, University of Campinas, São Paulo, Brazil; 16 October, 2019 15 October, 2020.
- 2012 Visiting Fellowship; Isaac Newton Institute for Mathematical Sciences, Cambridge University; 21 April, 2012 27 May, 2012.
- 2010 Erasmus Mundus External Cooperation Window (EMECW 13) fellowship; visiting Ph.D. student at the Institute for Logic, Language and Computation, University of Amsterdam; 1 September, 2010 31 August, 2011.

2009 | Council for Scientific and Industrial Research, National Eligibility Test (CSIR – NET) fellowship; Doctoral student; Department of Pure Mathematics, University of Calcutta; 15 October, 2009 – 14 October, 2014.

#### Travel Grants

- 2019 Travel grant from the University Grant Commission (UGC), India, to present a contributed talk in the 16th CLMPST, Prague, Czech Republic, 5 10 August, 2019.
- Travel grant from the *Indo-European Research Training Network in Logic (IERT-NiL)* for a short term research visit to the Institute for Logic, Language and Computation, University of Amsterdam, Amsterdam, The Netherlands.
- 2013 Travel grant from the National Board for Higher Mathematics (NBHM), India, for a short term research visit to the University of Hamburg, Hamburg, Germany and the Institute for Logic, Language and Computation, University of Amsterdam, Amsterdam, The Netherlands.
- Travel grant from the *University of Calcutta*, India, for a short term research visit to the Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.

### **Invited Talks and Paper Presentations**

- Constructing illoyal algebra-valued models of set theory, Annual Conference of the Australasian Association for Logic, will be virtually hosted by the University of Queensland and the University of Melbourne, Australia. 23 June 25 June, 2021.
  - What is a set?, A National Webinar on "A Few Basic Foundational Aspects of Mathematics", organized by the Department of Mathematics, Sree Chaitanya College, Habra, India, 18 June & 25 June, 2021.
  - ZF between classicality and non-classicality, UNICAMP-Konstanz Philosophy of Set Theory Seminar, organized jointly by the University of Campinas, Brazil and the University of Konstanz, Germany, 11 March 24 June, 2021.
  - Quotient models for a class of non-classical set theories, 9th Indian Conference on Logic and its Applications (ICLA 2021), organized online by the Association for Logic in India, 4 March 7 March, 2021.
  - Models of non-classical set theories, organized by the Association for Logic in India under the Conseil International de Philosophie et des Sciences Humaines (CIPSH), UNESCO, on the occasion of World Logic Day, 14 January, 2021.
- Cardinality in a model of paraconsistent set theory, Studies in mathematical logic, University of São Paulo, Brazil, 5th 6th December, 2019.

- Foundations of mathematics in a model of paraconsistent set theory, Logic Colloquium, 2019, European Summer Meeting of the Association for Symbolic Logic, Prague, Czech Republic, 11th August 16th August, 2019.
- Constructing illoyal algebra-valued models of set theory, 16th International Congress on Logic, Methodology and Philosophy of Science and Technology, Prague, Czech Republic, 5th August 10th August, 2019.
- Paraconsistent set theory, Pre-conference workshop, 8th Indian Conference on Logic and its Applications (ICLA 2019), Department of Computer Science and Engineering, Indian Institute of Technology (IIT), Delhi, India, 1st March 5th March, 2019.
- 2017 Logic of an algebra A and the logic of V<sup>(A)</sup>, 19th Annual Seminar on Logic and its Applications, Department of Pure Mathematics, University of Calcutta, Kolkata, India, 13th October 15th October, 2017.
- 2016 A three-valued paraconsistent logic LPS<sub>3</sub>, Merging Borders in Logic and Philosophy of Mathematics, Department of Philosophy, University of North Bengal, North Bengal, India, 17th November, 2016.
- A paraconsistent set theory, International Seminar on History and Philosophy of Mathematics II: Pluralism in Mathematics, Ramakrishna Mission Institute of Culture, Gol Park, Kolkata, India, 10th December 12th December, 2015.
  - Natural numbers in a model of some paraconsistent set theory, Annual Meet of Calcutta Logic Circle: Logic and its Applications, Indian Institute of Bio-Social Research and Development, Kolkata, India, 6th November 8th November, 2015.
  - Ordinals in an algebra-valued model of a paraconsistent set theory, 6th Indian Conference on Logic and its Applications, Indian Institute of Technology (IIT), Bombay, India, 8th January 10th January, 2015.
- A glimpse of paraconsistent logic(s) and LPS₃, International Seminar on History and Philosophy of Mathematics 2014, Bose Institute, Kolkata, India, 20th February 22nd February, 2014.
  - A paraconsistent logic obtained from an algebra-valued model of set theory, 5th World Congress on Paraconsistent Logic, Indian Statistical Institute, Kolkata, India, 13th February 17th February, 2014.
- A new three valued paraconsistent logic, International Seminar on Logic and Cognition (SLC 2013), Jadavpur University, Kolkata, India, 30th October 1st November, 2013.
  - $\bullet$  The logic  $\mathbf{LS}_3$  and its comparison with other three-valued paraconsistent logics, 13th Asian Logic Conference (ALC 2013), Sun Yat-sen University, Guangzhou, China, 16th September 20th September, 2013.

- The Boolean-valued model construction with algebras of non-standard logics, Postgraduate Workshop on Alternative Set Theory, University of Amsterdam, Amsterdam, The Netherlands, 22nd June 24th June, 2013.
- Set theory, Annual Meet on Logic and its Application: Celebrating the Alan Turing Year, Indian Institute of Bio-Social Research and Development, Kolkata, India, 29th September 1st October, 2012.
  - Algebra-valued models of set theories, Semantics and Syntax: A Legacy of Alan Turing, Isaac Newton Institute for Mathematical Science, Cambridge University, Cambridge, UK, 9th January 6th July, 2012.
  - Foundation of mathematics, Reading Russell on the Centenary of Principia Mathematica (1910 1913), Rabindra Bharati University in Collaboration with Indian Council of Philosophical Research, Kolkata, India, 24th January 25th January, 2012.
  - Delivered a talk in students session in the 4th Indian School on Logic and its Applications (ISLA), Sikkim Manipal University, Manipal, 9 January 20 January, 2012.
- Delivered a talk in *Logic and its Application*, Annual meet of Calcutta Logic Circle, Indian Institute of Bio-Social Research and Development, Kolkata, India, 2 September 4 September, 2011.

## Conferences, Seminars, and Workshops Organized

- 2017 | 19th Annual Seminar on Logic and its Applications, Department of Pure Mathematics, University of Calcutta, Kolkata, India, 13 October 15 October, 2017.
- International Seminar on History and Philosophy of Mathematics II: Pluralism in Mathematics, Ramakrishna Mission Institute of Culture, Gol Park, Kolkata, 10 December 12 December, 2015.
  - Logic and its Application, IBRAD, Kolkata, 6 November 8 November, 2015.
- 2014 Logic and its Application, IBRAD, Kolkata, 17 October 19 October, 2014.
  - I was an International BRICS Committee member in the Organizing Committee of the 5th World Congress on Paraconsistent Logic, Indian Statistical Institute, Kolkata, 13 February 17 February, 2014.
- 2013 Logic and Cognition; Celebrating 25 years of Calcutta Logic Circle, Jadavpur University, Kolkata, 30 October 1 November, 2013.
- 2012 Logic and Its Application, Celebrating the Alan Turing Year, IBRAD, Kolkata, 29 September 1 October, 2012.
- 2011 Logic and its Application, IBRAD, Kolkata, 2 September 4 September, 2011.

## Positions Held

2014 - Till date	Assistant Professor, Business Mathematics and Statistics, Department of Commerce, St. Xavier's College, Kolkata.
2019 - 2020	Visiting Researcher, Institute of Philosophy and Human Sciences, University of Campinas, São Paulo, Brazil.
Session 2014 – 2015	Guest Faculty, M. Phil. course, School of Cognitive Science, Jadavpur University.
Session 2013 – 2014	Guest Faculty, M. Sc. in Mathematics, Department of Mathematics, Presidency University.
Session $2013 - 2014$	Guest Faculty, M.Phil. course, School of Cognitive Science, Jadavpur University.
2013 - 2014 2011 - 2014	Senior Research Fellow (CSIR – NET), Department of Pure Mathematics, University of Calcutta.
2009 - 2011	Junior Research Fellow (CSIR – NET), Department of Pure Mathematics, University of Calcutta.
2008 - 2009	Lecturer, B. Tech. Division, Pailan College of Management and Technology.

### Research Interests

- Classical and non-classical set theories
- Classical logic
- Non-classical logics, specially paraconsistent logic
- Infinite game theory

# Recognition and Honor

- Member of the "Calcutta Logic Circle" (India).
- Member of the "Association for Logic in India" (India).
- Member of the "Association for Symbolic Logic" (USA).